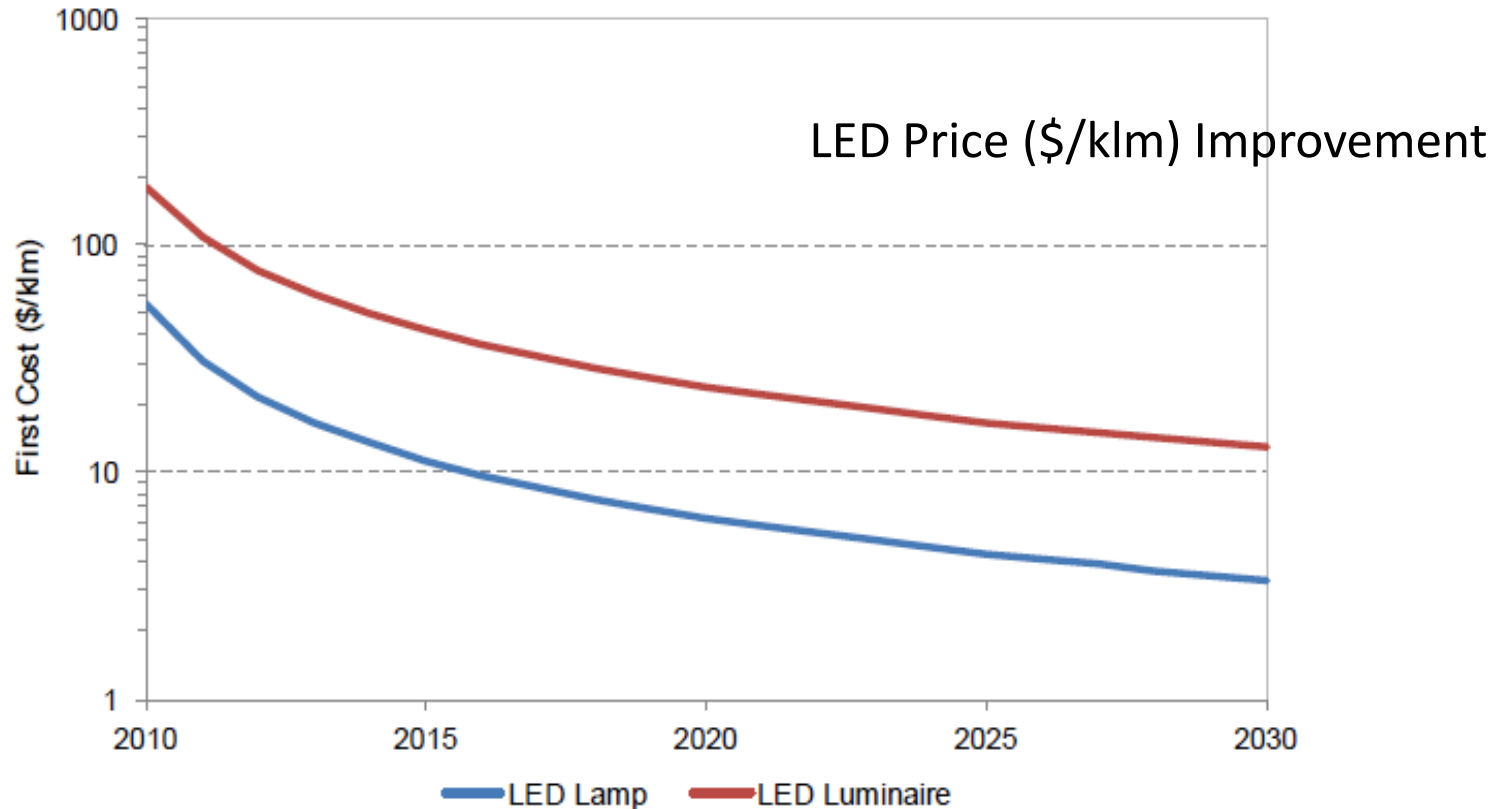2012 DOE SOLID-STATE LIGHTING
MARKET INTRODUCTION WORKSHOP
July 18, 2012

Product Pricing, Cost Effectiveness and Financing

Edward Smalley

Director, Municipal Solid-State Street Lighting Consortium

Seattle City Light | Government and Legislative Affairs

Seattle City Light

Trend: Rapidly Declining Prices

LED Price ($/klm) Improvement

Source: Navigant Consulting, "Energy Savings Potential of Solid-State Lighting in General Illumination Applications". U.S. Department of Energy. January 2012

Real World Experience – Residential Fixtures

Seattle (for purchases of 2,000+ units)

Fall 2009	Spring 2010	Fall 2011	Winter 2012	Summer 2012
$369	$289	$239	$219	$204

…price reduction of 45% in past 30 months

- Several MFRs recently announced LED streetlights for under $200
- Simple payback of 6 – 9 years typical

Available Tool
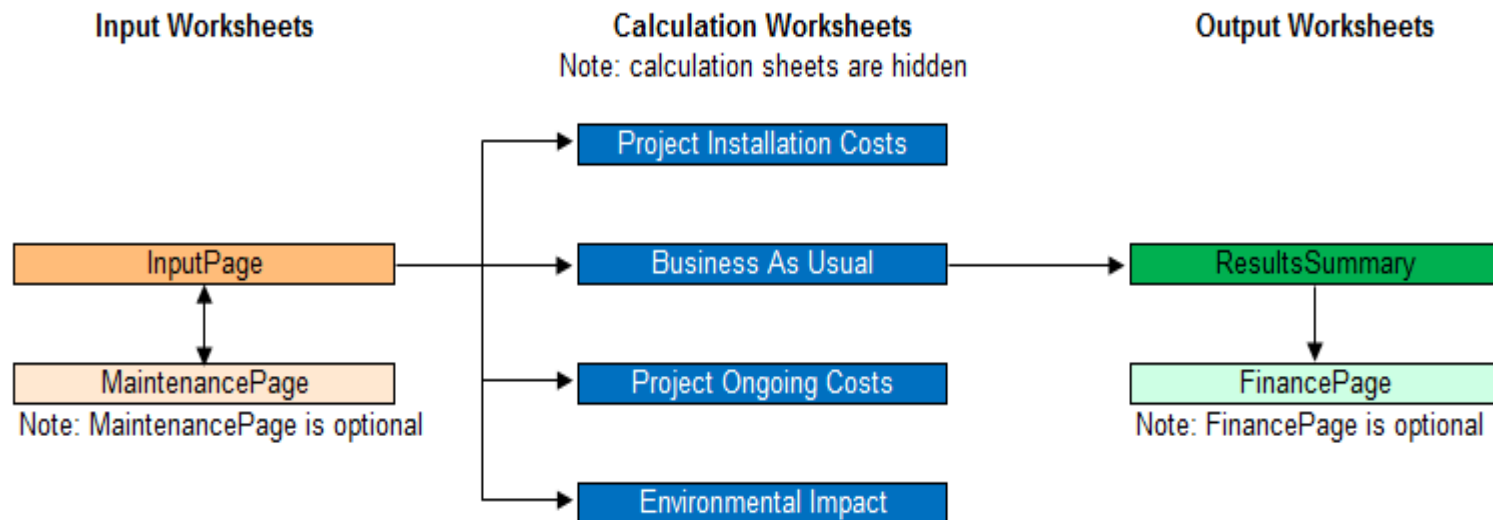
Municipal Solid-State Street Lighting Consortium

- Financial Analysis Retrofit Tool

Purpose and Background

- Tool created to evaluate costs and benefits of conversions to LED street lighting.
- May be used to analyze any street-lighting technology.
- Detailed analysis provides numerous outputs, including:
  - Annual energy and energy-cost savings
  - Annual maintenance savings
  - Annual greenhouse gas reductions
  - Simple payback
  - Internal rate of return
  - Net present value
- Collaborative effort
  - Clinton Climate Initiative http://www.clintonfoundation.org/what-we-do/clinton-climate-initiative/
  - Municipal Solid-State Lighting Consortium http://www1.eere.energy.gov/buildings/ssl/consortium.html

Structure and Flow of Tool

- Input page

- Maintenance page (optional)

- Results summary

- Finance page (optional)

Input Worksheets

Calculation Worksheets
Note: calculation sheets are hidden

Output Worksheets

InputPage

MaintenancePage
Note: MaintenancePage is optional

Project Installation Costs

Business As Usual

Project Ongoing Costs

Environmental Impact

ResultsSummary

FinancePage
Note: FinancePage is optional

Results Summary

- Summary statistics include:
  - Simple payback
  - Internal rate of return
  - Net present value
  - Full-implementation reductions of energy use, energy costs, and greenhouse gases
- 15 years of detailed annual cash flow data
- Charts
  - Cumulative total cash flows over time
  - Pre- and post-project energy consumption comparison
  - Annual cash flows broken out by component over time

Finance Page (optional)

- Provides user ability to examine impacts of various financing options.
  - Up to 8 loans of varying amounts, terms, interest rates, and start years may be examined.
- Produces levered and unlevered summary statistics for project.
  - Net present value
  - Internal rate of return
- Generates detailed annual cash flow data.

Financing LED Retrofits

- Municipal and Municipally-owned utility:

  - Los Angeles using internal and external loans (no CCI funds)

  - Seattle using internal loan

  - Both use savings to repay the loan and reduce rates

Financing LED Retrofits

- Los Angeles
  - Number of lights Converted/Target: 90,000+/140,000
  - Cost Saved to Date: $3.6 million
  - Savings at conclusion of conversion: $7.5 million
  - Completion: June 2013
  - Payback: 7 years
- Seattle
  - Number of lights Converted/Target: 25,000/40,000
  - Cost Saved to Date: $1.5 million
  - Savings at conclusion of conversion : $2.4 million
  - Completion: Fall 2013
  - Payback: 7.6 years

Financing LED Retrofits

- New York City – Financing small improvements using existing capital budget. Using savings for additional improvements while maintaining existing baseline funding levels from GF

- Bulk purchase: other municipalities, esp. smaller ones, can benefit from combined purchasing power

Financing LED Retrofits

- **Iowa Municipal Utilities Association**
  - 15 small municipal utilities in Iowa
  - ARRA/EECBG Funding
  - MSSLC Consortium Model Specification for LED Roadway Luminaires
- **Pocahontas, Iowa**
  - Population: 1,700
  - Streetlights Replaced: 280
  - Cost: $190,000
  - Completed: Winter/Spring 2012

Financing LED Retrofits

- Yonkers, NY
  - Performance/Energy Services Contract
  - LED Fixtures
  - City to Buy back equipment for $1 in ten years

- Expansion Clause, Interagency Mutual Assistance Agreements
  - States, Cities, Counties, Utilities
  - One Bidder with known quantity
  - Expansion option for specified duration
  - Other agencies may piggy-back on contract

Financing LED Retrofits

- Energy Services Company (ESCO) type financing: third party provides investment and retains energy and maintenance savings; municipality continues to pay established baseline rate until loan is repaid

  - DC Department of Transportation using an AMC; projected replacement of up to 37,000 streetlights in next 5 years

  - Other cities installing specific products that come with "special financing"

    - » But always look a gift horses in the mouth!

- Consortium Committee on Financing – Please Participate!

Resource Needs

- Financial language templates for RFPs/RFIs
- Assistance with rate schedule development and revisions
  - Review schedules developed by others
  - PG&E: 5 watt increments
- Expanded group purchasing options
  - Iowa Municipal Utilities Association performed statewide purchase
  - PG&G offering turnkey installations
- Technology Gap education
- Incentive programs with technical support as part of program

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Resources

- MSSLC home page:
http://www1.eere.energy.gov/buildings/ssl/consortium.html

- MSSLC Retrofit Financial Analysis Tool web page:
http://www1.eere.energy.gov/buildings/ssl/financial-tool.html
  - Zip file including two versions of tool (with and without sample data)
  - Document providing helpful tips (which will expand over time)
  - Explanatory video

- Contact the Consortium: MSSLC@seattle.gov

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Thank You…! Questions?

_____

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http://seattle.gov.light | *www.ssl.energy.gov/consortium.html*

Seattle City Light